

REMARKS

This amendment is filed in response to the Office Action dated May 30, 2006. In view of this amendment, this application should be allowed and the case passed to issue.

No new matter is introduced by this amendment. The amendment to claim 1 is supported by claim 2, as originally filed.

Claims 1 and 3-31 are pending in this application. Claims 1-6 are rejected. Claims 7-31 were withdrawn pursuant to a restriction requirement. Claim 1 is amended in this response. Claim 2 was canceled in this response.

Claim Rejections Under 35 U.S.C. § 102

Claims 1, 3, and 5 were rejected under 35 U.S.C. § 102(e) as being anticipated by Reiser (US Pat. Pub. No. 2003/0207162). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the present invention, as claimed, and the cited prior art.

An aspect of this invention, per claim 1, is a fuel cell system which generates electricity by supplying fuel gas and oxidant gas to a fuel cell stack. The fuel cell system comprises a fuel cell stack and a DC power supply. The DC power supply comprises at least one of a generator and battery. An anode of the DC power supply is connected to an anode of the fuel cell stack, and a cathode of the DC power supply is connected to a cathode of the fuel cell stack. A controller is programmed to determine whether or not the fuel cell stack is generating electricity, and supply current to the fuel cell stack by at least one of the generator and the battery when generation of electricity by the fuel cell stack is terminated.

The Examiner asserted that Reiser discloses a vehicle with a fuel cell system that comprises a fuel cell stack in series with the DC power supply that comprises a battery and auxiliary load.

Reiser does not anticipate the claimed fuel cell system because Reiser does not disclose that an anode of the DC power supply is connected to an anode of the fuel cell stack, and a cathode of the DC power supply is connected to a cathode of the fuel cell stack, as required by claim 1.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the disclosure in a single reference of each element of a claimed invention. *Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 399, 36 USPQ2d 1101 (Fed. Cir. 1995); *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). Because Reiser does not disclose that an anode of the DC power supply is connected to an anode of the fuel cell stack, and a cathode of the DC power supply is connected to a cathode of the fuel cell stack, as required by claim 1, Reiser does not anticipate claim 1.

Applicants further submit that Reiser does not suggest the claimed fuel cell system.

Claim Rejections Under 35 U.S.C. § 103

Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Reiser in view of Edlund et al. (U.S. Pat. Pub. No. 2002/0114984). This rejection is traversed, and reconsideration and withdrawal respectfully requested.

Claim 2 has been canceled, however, the limitations of claim 2 were added to claim 1. The combination of Reiser and Edlund et al. do not suggest the claimed fuel cell system. There is no suggestion in either Reiser or Edlund et al. to connect the DC power supply to the fuel cell stack, as required by claim 1. The Examiner asserted that Edlund et al. teach electrolysis that produces hydrogen and is fed into the fuel cell, and that it would have been obvious to

incorporate electrolysis into a fuel cell system to insure a steady stream of hydrogen into the fuel cell system. Edlund et al., however, teach generating hydrogen at a location apart from the fuel cell stack 22, such as fuel processor 12, and feeding the hydrogen generated at the fuel processor 12 to fuel cell stack. Edlund et al. do not suggest generating hydrogen at the fuel cell stack 22 by electrolysis.

Further, combining Edlund et al. and Reiser as asserted by the Examiner would be contrary to the objects of and method of operation of the Reiser fuel cell system. Reiser discloses a DC power supply 29 placed in series with a fuel cell stack 7 in order to force more current through the fuel cell stack than would occur with just a resistive load. Additional current provided by the DC power supply forces weak cells in the fuel cell stack into a negative cell voltage, which produces heat in the cell (*see* paragraph [0006]). When a predetermined current density is imposed on the fuel cell stack the good cells have positive voltages, while the poorer cells will initially consume oxygen therein and subsequently be driven to negative voltages with cathodes thereof evolving hydrogen by the process $2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$ and the anode thereof consuming hydrogen. The current flow through the PEM and/or reaction of the evolved hydrogen with air produces the internal heat (*see* paragraphs [0007] to [0010]). Accordingly, the DC power supply 29 has to be connected with the fuel cell stack 7 of Reiser in series with an anode thereof being connected to a cathode of the fuel cell stack and a cathode thereof being connected to an anode of the fuel cell stack in order to achieve the objects of the Reiser invention.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the

knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). There is no suggestion in Edlund et al. to modify the fuel cell system of Reiser so that an anode of the DC power supply is connected to an anode of the fuel cell stack, and a cathode of the DC power supply is connected to a cathode of the fuel cell stack, as required by claim 1. The mere fact that references can be combined or modified does not render the resulting combination obvious unless the prior art also suggests the desirability of the modification. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

The Examiner asserted modification of Reiser would be contrary to the objectives of Reiser. If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Therefore, it would not have been obvious to modify the fuel cell system of Reiser as asserted by the Examiner.

The only teaching of the claimed fuel cell system is found in Applicant's disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Examiner's conclusion of obviousness is not supported by any suggestion in the prior art to modify Reiser. The Examiner's retrospective assessment of the claimed invention and use of unsupported conclusory statements are not legally sufficient to generate a case of *prima facie* obviousness. It appears the Examiner's conclusion of obviousness is rooted in improper hindsight reasoning.

Restriction

Upon the allowance of the elected claims, Applicant respectfully requests rejoinder, examination, and allowance of the withdrawn species, and rejoinder, examination and allowance of the withdrawn method claims in accordance with the rejoinder provisions of MPEP § 821.04(b).

In view of the above remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Bernard P. Codd

Registration No. 46,429

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 BPC:MWE
Facsimile: 202.756.8087
Date: August 30, 2006

**Please recognize our Customer No. 20277
as our correspondence address.**